IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF PENNSYLVANIA

In Re: Asbestos Products Liability Litigation	)	Civil Action No. MDL 875
All Actions	)	

AFFIDAVIT OF SAMUEL A. FORMAN, M.D.

1. I am a medical doctor specializing in preventive medicine and occupational medicine. I received a B.A. degree from the University of Pennsylvania majoring in history and biology, graduating *magna cum laude* in 1973. I attended Cornell Medical School, graduating with an M.D. degree in 1977. I also received a degree in public health in 1977 as a result of a joint program with the Harvard School of Public Health. Thereafter, I became board certified in occupational medicine after attending a residency at the Harvard School of Public Health.

2. From 1973 to 1977, I participated in Ensign 1975, a Navy program that permitted me to engage in active duty service and obtain hands-on training during the summers between medical school sessions. My participation in this program gave me background and experience different from that of many other prospective medical officers at that time, because very few medical officers engage in operational and administrative rotations as part of their service and training. In the summer of 1974, I engaged in a midshipmen cruise aboard the USS Shreveport (LPD-12) for the purpose of obtaining a general understanding of ship operations outside the medical department. I attended training classes and observed activities in all parts of the ship including the engineering

department, command information center, commissary department, supply and repair divisions, and aviation division. In the summer of 1975, I did a rotation at the Navy Bureau of Medicine and Surgery ("BUMED"), known at times as the Naval Medical Command. While there, I participated in medical administration in the office overseeing all medical training for the Navy and worked directly with a number of high-ranking officers in BUMED, including William M. McDermott, who at that time held the rank of Captain but who later became Deputy Commander of the Naval Medical Command. During this rotation, I had an extended assignment to analyze Navy expenditures for medical education at civilian universities to ensure the Navy's needs were being met. In the summer of 1976, I did a clinical rotation on the general and internal medicine wards at San Diego Naval Hospital, the largest military hospital in the world. By the time I graduated medical school, I had already accumulated approximately six months of active duty service from my summer internships. These internships gave me a fundamental understanding of the needs of sailors at sea, a general understanding of ship operations, including ship propulsion systems, and insight into the leadership and administrative side of the Navy.

3. In 1977, I graduated medical school and went on full-time active duty in the Navy. I performed my internship at the Bethesda Naval Medical Center in Bethesda, Maryland during 1977 and 1978. I remained on active duty in the Navy until 1983. Thereafter, I continued to work for the Navy as a civilian employee until 1986. My qualifications and credentials are more fully described in my curriculum vitae (Exhibit A).

4. Over the course of my active duty service in the Navy, I served aboard Navy ships whose primary purpose was to fulfill national defense missions of the United States. Assignments aboard ship, involving duty at sea, included *USS Shreveport* (LPD-12) in the North Atlantic, *USS Duluth* (LPD-6) in the Eastern Pacific, and *USS St. Louis* (LKA-116) in the Western Pacific oceans. At all times, these ships were performing missions and activities aimed at preparing for or deterring combat. In the military setting, a major goal of training is combat readiness. This training is intended to simulate combat and combat conditions. For example, the Navy hands out "battle efficiency" ribbons to ships that perform well in war exercises. Even combat support ships are required to remain ready to assist ships and sailors on the front line and, at times, these support ships must themselves go into harm's way. To achieve its mission, the Navy had to be willing to put life and limb at risk not just on the front line but also in support operations. One of the highest profile operations in which I was involved occurred aboard the *USS St. Louis* (LKA-116), which was an amphibious attack transport ship deployed at the time to the Western Pacific for the purpose of carrying Marines, cargo (including heavily armored Marine Corps vehicles used in amphibious assault), equipment and supplies to Navy shore-based facilities. In March 1979, President Carter ordered the Navy to rescue a wave of Vietnamese and Southeast Asian refugees who were escaping communist Vietnam and local pirates into the South China Sea. The *St. Louis* was the first ship of the Seventh Fleet to arrive on the scene. Fortunately the *St. Louis* was able to perform this mission without exchanging hostile fire; however,

in order to perform this humanitarian rescue operation, the *St. Louis* had to travel just outside the twelve mile international limit and sail directly into an area threatened by actively hostile Communist interests. This situation represented an intense Cold War scenario, one of but many types of hazardous scenarios and missions for which the Navy must be prepared.

5. In the course of my active duty service, I also worked in Navy shore facilities, including shipyards such as the Long Beach Naval Shipyard. These facilities contributed to the defense of the Country by engaging in industrial efforts to construct, repair and overhaul the Navy's combat and combat support vessels. My role was to ensure that the Navy personnel and civilians involved in these efforts performed their duties as safely as possible.

6. From 1980 to 1982, I ran an occupational health clinic at the Naval Weapons Station at Seal Beach, California, and assisted in the medical programs at the Long Beach Naval Shipyard. Among other responsibilities, I assisted in the asbestos medical surveillance program for over 2,000 federal Civil Service employees and uniformed sailors. At any one time, I was following 200 cases of asbestos disease.

7. From 1982 to 1986, I was assigned to the Naval Environmental Health Center at Norfolk, Virginia. While stationed there, I designed occupational medicine programs with regard to Navy-specific occupational diseases, performed health hazard evaluations, inspected the occupational health programs of government facilities as part of the Navy Occupational Safety and

Health, or "NAVOSH," program, carried out epidemiologic studies, and trained Navy doctors and nurses in occupational medicine.

8. In 1983, a Navy JAG officer for the Naval Medical Command requested that I become part of a team to locate, digest and organize government documents for production in asbestos litigation. Over the next year and a half, I investigated the Navy's historical handling and knowledge of various industrial hygiene issues, including asbestos disease.

9. In 1985, pursuant to Navy orders, I completed my review of Navy knowledge and practice in industrial hygiene, including its awareness of and response to health hazards of asbestos, as a formal assignment. My search for documents took me to the National Archives, other warehouses and storage facilities for records of the Navy's Bureau of Medicine and Surgery. I was given full security clearances for and access to these facilities. I also conducted research at private facilities such as Harvard University's Countway Library of Medicine's section for rare books and manuscripts.

10. From my review of countless Navy documents and my studies while employed by the Navy, I acquired extensive knowledge as to the state of Navy knowledge and awareness regarding the hazards of asbestos.

11. Following my research, and with the approval of the U.S. Navy's Bureau of Medicine and Surgery, I published an article entitled "U.S. Navy Shipyard Occupational Medicine Through World War II" in the *Journal of Occupational Medicine*, Vol. 30, No. 1 (Jan. 1988).

12. Though I no longer hold any formal position with the Navy, since I left I have been asked on a number of occasions to speak to Navy medical and safety personnel on issues relating to the history of occupational medicine and industrial hygiene in the Navy.

13. I am currently a Visiting Scientist in the Department of Environmental Health at the Harvard University School of Public Health.

14. The Navy has always taken responsibility for the health and safety of its uniformed and civilian personnel. It has consistently exercised its discretion regarding hazard recognition and appropriate controls in Navy workplaces. As Navy Captain Ernest W. Brown, M.D., recognized as the architect of the Navy's formal occupational health program prior to World War II, wrote in 1940: "One of the most important concerns of the Medical Department of the United States Navy today is industrial hygiene, especially in navy yard practice."

15. This commitment was reflected in numerous other Navy statements and documents. In 1943, Secretary of the Navy, Frank Knox, in a statement co-signed by the Chairman of the U.S. Maritime Commission, E. S. Lamb, stressed the Navy's commitment in this regard:

> The necessity for conserving manpower and promoting the physical welfare, health, and safety of what shortly will amount to one million workers in shipyards required that careful observance of standards for the prevention of accidents and protection of health be accorded. Aside from the weight which must be given humanitarian consideration, it is simply good common sense that as much care and attention be given to protecting the human factors in the war production program as is given machines.

"Minimum Requirements for Safety and Industrial Health in Contract Shipyards." Similarly, in a 1955 Naval Institute publication called *The Human Machine*,

Captain Charles W. Shilling of the Navy Medical Corps described the "paramount importance" of Navy health: "[T]he medical component of the Navy has a heavy responsibility" with a mission to promote physical fitness, prevent and control diseases and injuries and treat the sick and injured.

16. The most senior Medical Corps officer in the Navy is the Navy Surgeon General, who is also the Chief of BUMED and who reports to the Chief of Naval Operations ("CNO"). The Navy Surgeon General has responsibility to spell out health programs, including prevention and injury care, for sailors and civilian workers (as appropriate). Medical Corps, allied health professions and enlisted hospital corpsmen are responsible for advising operational line commands to carry out preventive practices and to provide specialized industrial hygiene services. It is the responsibility of the Navy line authorities (the operational chain of command) to carry out these recommendations. The Navy Surgeon General's objective is that all personnel receive the highest level of services that the Navy can deliver and that these services are appropriate to the environments in which the personnel work. The Navy Surgeon General achieves this objective through the development of standardized programs for medical care. As a General Medical Officer, I was not permitted to deviate from the programs developed by the Navy Surgeon General without approval from a more senior Navy officer except in extraordinary circumstances, such as if a ship was isolated or out of contact with more senior, knowledgeable and experienced officers.

17. All Navy personnel including medical officers must follow their chain of command to maintain good order and discipline. Enlisted personnel are indoctrinated during boot camp and training with the understanding that they must conduct all activities "the Navy way," meaning that Navy orders and instructions supersede any information or directions received from any source outside the Navy. Sailors must follow orders trusting that their chain of command will have the mission of the Navy in mind and will address safety as best as possible. Unlike in the civilian community, all military personnel who refuse to perform an order could be subject to various penalties pursuant to the Uniform Code of Military Justice ("UCMJ"). Absent extraordinary circumstances, the Navy demands and enforces rigid adherence to the chain of command. It does so because it is the military's method for institutionalizing strategic considerations, highly specialized expertise, and prior experience and then transforming this information in an effective and predictable way into programs and orders for all personnel to follow.

18. Collective and uniform communication and implementation of Navy programs and orders are key to the Navy's operational flexibility. The Navy has numerous sailors with specialized capabilities. The Navy also maintains many ships and multiple shipyards with specialized capabilities. The Navy strives to ensure that each sailor is consistently trained and that each ship in its fleet is predictably constructed so that it can rely on both the sailors and the ships to perform critical operations without endangering sailors any more than is necessary to achieve mission success.

19. Consistent with the Navy's interpretation of the importance of industrial hygiene and occupational health, the Navy's programs in these areas have paralleled, and at times led, the development of occupational medicine and industrial hygiene in general, and asbestos-related issues in particular. The Navy's knowledge in the areas of asbestos and associated health conditions has been quite complete when compared to available knowledge over time, and at least by the early 1940s, the Navy had become a leader in the field of occupational medicine relating to, among other things, asbestos exposure.

20. As early as 1922, the Navy recognized, as exemplified by its instructions to officers published in the *Navy Medical Bulletin*, the health hazards associated with airborne asbestos dust and the appropriate protective measures to prevent asbestos exposure. These included the use of water to dampen dust, exhaust systems to remove dust, enclosed chambers to prevent escape of dust and respirators. The Navy's knowledge of potential asbestos-related health problems, and of the means to control against them, continued to expand throughout the following decades, as senior Navy officers actively assessed, evaluated, controlled, and made recommendations concerning Navy policy regarding disease and injury prevention, including asbestos related occupational health hazards.

21. The Navy's health and safety apparatus on the eve of World War II was described in the 1939 Handbook of the Navy Hospital Corps published by the Bureau of Medicine and Surgery under the direction of the Secretary of the Navy:

> The United State Navy is one of the largest of the industries maintained by this Government. An organization has been set up in the Navy to protect its personnel, both civilian and naval. A safety engineer is provided, who acts directly under the Assistant Secretary of the Navy. He has supervision of the safety precautions taken to protect the civilian employees in the navy yards, ammunition depots, torpedo stations and the like. He is also a consultant in all matters pertaining to safety aboard ships, at training stations and other Navy Department activities. A naval medical officer is assigned to his office for the purpose of consultation in all matters pertaining to health and safety and to cooperate in devising means by which health may be protected and accidents prevented. Aside from this particular medical officer, all medical officers, dental officers, members of the Hospital Corps and nurses form the balance of the medical staff of this organization. It is essential that each one of these members know and understand the hazards to be encountered in the Navy, the steps to be taken to protect against injury and disease, the treatment of diseases and injuries arising therefrom and the organization of the medical personnel for such purposes. Naval medical personnel are required to perform duties ashore, at sea, in foreign countries, in the air and under the sea. In each of these places a variety of health hazards exist. It is therefore necessary that this [sic] personnel have a thorough knowledge of the industry to which they are attached, the hazards presented, the methods of prevention and the treatment of all injuries occurring.

22. The Handbook of the Navy Hospital Corps explained that all Navy yards have a commandant who "is responsible to the Navy Department for the protection of employees, as well as Navy personnel, under his command. He is familiar with . . . the health and accident hazards presented." Thus, the Commandant was "responsible for the appointment of the safety engineers [who will] make inspections and recommend proper protective measures." The Handbook further called for the Navy medical officer to "advise the safety engineer and instruct the employees in safety measures and encourage them to cooperate in protective measures." These safety measures included required "masks for asbestos workers."

23. Also in 1939, the Annual Report of the Surgeon General of the Navy addressed the "Hazard of Asbestos," and described asbestosis as "an industrial disease of the lungs incident to inhalation of asbestos dust for prolonged periods." The Report noted the risk from "continued exposure to present occupational conditions" at Navy facilities, and directed appropriate methods for preventing such exposures, recommending the use of local exhaust ventilation to control asbestos dust exposure for insulators in the fabrication shop.

24. At about the same time, Navy Captain E.W. Brown undertook an assessment of asbestos exposure, and its prevention, in Navy yards. In an article entitled "Industrial Hygiene and the Navy in National Defense" published in 1941, Captain Brown prescribed appropriate measures for the prevention of asbestos exposure. These included use of respirators, local exhaust ventilation, and wetting of asbestos containing materials.

25. The Navy has historically directed all aspects of policy and procedure addressing the health and safety of Navy personnel. This direction has encompassed policies, practices and procedures to protect workers from dangers posed by exposure to asbestos. Indeed, the Navy has on several occasions over time rejected offers of assistance from other leaders in the field.

26. For example, in 1941, the U.S. Labor Department's Bureau of Labor Standards offered to conduct inspections of health and safety conditions in Navy shipyards. Navy leaders rejected this offer. In a memorandum to Navy Surgeon General McIntire, Commander Charles S. Stephenson, head of the

Division of Preventive Medicine within the Navy's Bureau of Medicine and Surgery, offered "[n]otes for consideration when you call on Assistant Secretary [of the Navy Ralph A.] Bard." Commander Stephenson advised Admiral McIntire that Assistant Secretary Bard:

> asks specifically what the policy is concerning invitation of...the Bureau of Labor Standards, Labor Department into the Navy Yards to make a survey of the welding and other hazards. I told him that we had never done that sort of work and recommended against it, as I know who [the Bureau of Labor Standards] intends to send if it should be done.

Navy leaders recognized that other government departments had a high level of expertise, while rejecting the offers of assistance:

> I gave Mr. Bard and the two officers present a complete story of the beginning of this controversy from the Federal Administrator's letter: that is, that the United States Public Health Service had four teams of traveling scientists alleged to be able to make surveys of all of the Navy Yards and make recommendations for the correction of such hazards as were discovered.

He then emphasized:

> I told Mr. Bard that this was not considered the best policy, due to the fact that we had medical officers in the Yards and that in practically all instances recommendations of sound character had been made by medical officers. We saw no need of inviting the United States Public Health Service on its own invitation to do this job.

27. The Navy's reluctance to accept these offers of assistance was based on concerns regarding possible upset of labor relations, and also for security at Navy facilities. Stephenson's memorandum makes clear that these concerns originated at the highest levels of Government:

> Likewise, I told him that I had spoken to you and that you had indicated that President Roosevelt thought that this might not be the best policy, due to the fact that they might cause disturbance in the labor element.

(President Roosevelt was familiar with the structure and operation of the Navy's shipyards and other facilities – and in particular with the functioning of the Navy during wartime – from his tenure as Assistant Secretary of the Navy from 1913 until 1920. Admiral McIntire was President Roosevelt's personal physician in addition to being the Surgeon General of the Navy.)

28. Stephenson's positions were taken even in light of knowledge that not all industrial hazards were adequately controlled at Navy facilities: "I doubt if any of our foundries would be tolerated if the State industrial health people were to make surveys of them." Asbestos, too, was discussed as an issue: "I am certain that we are not protecting the men as we should."

29. Health and safety issues, including those relating to asbestos exposure, continued to be a major focus of the Navy and the United States Maritime Commission, throughout World War II. In 1943, the Navy, along with the Maritime Commission declared its responsibility for the safety and health of their workers and took charge of implementing and staffing safety and health programs for those workers. Following extensive discussion with various constituencies, the Navy and the Maritime Commission jointly issued "Minimum Requirements for Safety and Industrial Health in Contract Shipyards" ("Minimum Requirements"). The specific requirements imposed by the document enunciated for private and contract shipyards expectations that were already in effect and implemented at the Navy's own facilities.

30. The Minimum Requirements identified asbestos-related disease as a potential hazard of shipyard work, explaining that exposure could result from

handling, sawing, cutting, molding and welding rod salvage around asbestos or asbestos mixtures. The document advised that such jobs "can be done safely with:

1. Segregation of dusty work and,

2. (a) Special ventilation: Hoods enclosing the working process and having linear air velocities at all openings of 100 feet per minute, or

(b) Wearing of special respirators.

3. Periodic medical examination."

The 1943 Minimum Requirements document also warns that jobs involving exposure to asbestos require "respiratory protective equipment," in particular a "dust respirator." A ventilation supervisor (the safety engineer) was required to be trained to handle the entire ventilation program in the yard, which was to include classes, demonstrations and short talks on proper procedures.

31. The Minimum Requirements document further called for employee safety training: "the time for the safety training of an employee to start is at the inception of his employment." "Employees shall have in their possession, and be instructed in the proper use of, all necessary personal protective equipment before being started on any job." Safety bulletin boards were to be located at each hull and shop, with "[s]afety posters and other material on the bulletin boards" changed at least semi-monthly. The type of safety posters used in these worker educational campaigns included materials reinforcing the use of masks for protection against disease-causing dusts. One such poster stated, "His mask keeps him on the job."

32. This commitment by the Navy to address the asbestos-related health concerns of Navy workers, as set forth in the 1939 Handbook of the Hospital Corps and the Minimum Requirements document, is further evidenced by dozens of other documents generated by the Navy and consultants it retained during the war years.

33. Later in the war, following extensive study of asbestos-related health issues, Dr. Philip Drinker, a Harvard professor and Chief Health Consultant to the Division of Shipyard Labor Relations and consultant to the Navy Surgeon General since 1941, wrote on January 31, 1945 to Captain Thomas J. Carter at the Navy's Bureau of Medicine and Surgery. In his letter, he reported on analyses of airborne dust collected at Bath Iron Works, a leading contractor for construction of Navy vessels. Dr. Drinker summarized the results of the analysis: "This evidence is enough to indicate a fairly serious dust risk at Bath and to make it very probable that the same sort of thing will be found in other plants and yards where the same type of [asbestos] pipe covering materials are used."

34. In addition to asbestos health concerns revealed at Bath Iron Works, experience in some of the contract shipyards also came to the attention of Dr. Drinker and Navy authorities. For example, union and worker complaints regarding asbestos-containing insulation at New York Shipbuilding led Dr. Drinker to meet with manufacturers of asbestos pipe insulating materials used by the Navy. Dr. Drinker recorded that "they would be glad to get out a brief statement of precautions which should be taken in the light of their own

experience." However, Dr. Drinker wrote that he "underst[oo]d that neither Navy nor Maritime [Commission] wants any change in the specifications as the performance with the present materials is entirely satisfactory."

These sentiments reflect the Navy's commitment to maintaining complete control over existing military specifications, policies and procedures with respect to asbestos-containing materials and worker practices with those materials. The Navy maintained a fierce autonomy over hazard recognition and control, because the Navy considered itself the ultimate authority on naval systems and military workplaces. Regardless of the source of other information, the Navy viewed its unique knowledge as a strategic advantage in addressing hazard identification and control in its workplaces.

35. In the effort to achieve its mission, the Navy made trade-offs between the use of asbestos and the potential health impact on personnel. In the Navy's judgment, the beneficial aspects of asbestos from an engineering standpoint (technical performance, cost, weight, etc.) made it the best thermal insulation available and a critical war material. As knowledge of asbestos health risks evolved, the Navy made sensitive military mission-related decisions about deriving the benefits of asbestos while controlling its risks. Moreover, when the hazards of asbestos became more fully known to the Navy and the scientific community in the late 1960s, the Navy determined not to do an immediate fleet-wide elimination of asbestos. At the time, Navy leaders were concerned that a large scale, immediate asbestos removal program would pose at least three

problems: excessive cost; mission impairment; and increased health hazards to removal crews from disturbing fixed, in-place asbestos.

36. In my research, I have not located a single instance in which the Navy, at any time during the 1930s through the 1960s, instructed or permitted a supplier of engineering equipment to a vessel or facility to affix or provide any asbestos-related warning with its equipment. The Navy has not depended on equipment warnings in its workplaces concerning long-term occupational health issues. Rather than depending on equipment signage or labeling, the Navy put its efforts into work practice training, specifications for materials being used in its unique workplaces, and the hierarchy of industrial hygiene controls.

37. The Navy asserted for itself the role as final arbiter of what was best with respect to industrial hygiene in its unique workplaces to carry out its national defense mission. The Navy's reasons for this approach include: harmonizing industrial hygiene with its overall operations; maintaining security of its facilities; and unifying communications to its workers.

The Navy rejected participation from manufacturers in its efforts to alert its personnel to potential asbestos hazards in Navy operations. The Navy pursued the issue in its own way. Professor Drinker recorded:

> I met with the manufacturers of the materials used at Bath and they stated they would be glad to get out a brief statement of precautions which should be taken in the light of their own experience and that they would inform their competitors that I had asked them to do so. I understand that neither Navy nor Maritime wants any change in the specifications as the performance with the present materials is entirely satisfactory. From a health standpoint we do not believe any specification changes are needed.
>
> I suggested to Admiral Mills that it would be very desirable for Navy to examine men handling the preparation of [asbestos] pipe

> coverings and their installation in at least two Navy Yards and two Navy contract yards as this is much more a Navy than a Maritime problem because the materials are used especially on Navy vessels with high pressure steam power plants. Admiral Mills agreed that such studies would be wise before Navy or Maritime accepted this asbestos risk as being significant in our general ship construction program.

38. Dr. Drinker and his Navy colleagues published the results of the study he had suggested in W.E. Fleischer, et al., "A Health Survey of Pipe Covering Operations in Constructing Naval Vessels," 28 *Journal of Industrial Hygiene & Toxicology* 9-16 (Jan. 1946). The study reaffirmed the Navy's position regarding acceptable occupational dust exposure levels and dust control strategies. They offered the conclusion that "[asbestos] pipe covering is not a dangerous trade."

39. The conclusions of this study were carried into practice in Navy workplaces following World War II. The January 1947 issue of the Navy's *Safety Review* publication noted that "[e]xposure to asbestos dust is a health hazard which cannot be overlooked in maintaining an effective industrial hygiene programs."

40. Also during the second half of the 1940s, the American Conference of Governmental Industrial Hygienists ("ACGIH") evaluated the issue of asbestos exposures. This entity, comprised entirely of industrial hygienists with links to the government and academia, published threshold limit values for acceptable exposures to asbestos dust in the workplace. These standards were periodically updated over the years. Representatives of the Navy, trained as industrial hygienists, participated in the ACGIH. In recognition of the potential hazards associated with exposure to asbestos dust, a 1955 Navy Bureau of Medicine

instruction adopted the ACGIH's threshold limit value for exposure to asbestos dust among Navy personnel. The 1955 threshold limit value as promulgated in the Navy instruction was the same level to which the Navy had sought to control exposures during World War II.

41. During the 1950s, the Navy continued to prescribe safe work practices to address potential shipyard hazards associated with exposure to asbestos dust. In 1957, the Navy convened at the Boston Naval Shipyard a "Pipe and Copper Shop Master Mechanics' Conference" to address issues of concerns to those in the pipefitters' trade. At the conference were personnel from all twelve Navy shipyards and the Navy's Bureau of Ships in Washington, D.C.

42. The prepared remarks of a Long Beach Naval Shipyard official, included in the Minutes of the Conference reflect the Navy's stated policy that pipe insulators and laggers who handle asbestos products should wear respirators:

> Asbestos, when handled dry, produces vast amounts of silica dust. . . . [T]he material can be dampened to reduce the amount of dust liberated. However, the specified type of amosite [asbestos] for use on cold water piping is water repellent. Also material which must be removed from an existing installation is dry and powdery, being an excellent dust producer. . . .
>
> [D]uring 1956 eleven deaths from asbestosis were reported on the Pacific Coast alone. . . .
>
> I know that two of my insulators are now afflicted with this condition. How many more will become afflicted is something which I hesitate to predict.
>
> Again the solution is obvious. Remove the cause by substituting other products. . .

> In the meantime, the answer is the wearing of respirators by all who handle asbestos products.

43. A New York Naval Shipyard official added that if those working with asbestos insulation have not been "told . . . to put on masks, you are more or less the cause of their trouble." That same official added:

> I think everyone, who has people doing this type work, should warn their people regarding the handling of this material. With the proper handling of it on the job, and it has always posed a very big problem, because the men don't want to wear the masks, or get this dread disease. It is difficult to protect them. After a couple of years of mandatory wearing masks, I think they should realize the danger. I think everyone ought to enforce the wearing of masks. Don't forget this is something that injures people's health. We should do something about it – and fast, and I am convinced that what we are doing is not enough. We should not have people handle this material withou[t] protection.

44. On January 7, 1958, the Department of the Navy issued a "Safety Handbook for Pipefitters," which explicitly addressed the asbestos hazard and again set forth Navy policy for controlling this hazard. This handbook – one of many safety handbooks issued by the Navy – stressed that "[a]sbestos dust is injurious if inhaled," and warned those working with asbestos insulation materials to "[w]ear an approved dust respirator for protection against this hazard."

45. The early 1960s brought still further development of the Navy's policies and practices to protect workers from asbestos-related health concerns. Captain H.M. Robbins, a Navy physician, and W.T. Marr, a Navy industrial hygienist from the Long Beach Naval Shipyard, published the article entitled "Asbestosis" in the October 1962 issue of the Navy's internal *Safety Review* publication. The article addressed the potential for exposure to asbestos aboard ships:

> Aboard ship, a great variety of insulation is performed. Insulation blocks are shaped with a saw, pads are supplied to fittings, insulation cement is applied to blocks and covered with asbestos cloth. These and other operations take place in nearly all compartments; however, most work is done in the machinery spaces. By far the greatest potential exposure to asbestos fibers occurs during ripout of old insulation for ship overhaul or reconversions.

The article concluded that "[t]he worker's best protection is to avoid careless creation of dusty conditions, use damp material when possible, and wear respiratory protection constantly."

46. In 1968, the Navy came under scrutiny for its handling of asbestos-related health issues. On July 30, 1968, Murray C. Brown, Medical Director of the Public Health Service, wrote to Vice-Admiral R.B. Brown, the Chief of the Navy's Bureau of Medicine and Surgery, stating that "[o]ne of our grantees, Dr. Irving Selikoff of New York University, has recently completed a study of non-insulation shipyard workers' exposure to asbestos," and that "Dr. Selikoff reports he has some interesting data and has requested that we arrange an information meeting with your Department and the U.S. Department of Labor to discuss his findings." On December 5 of that same year, Admiral Brown reported to others in the Navy health establishment that "Doctor I.J. Selikoff of Mount Sinai Hospital, through the news media, stated that he has warned the Navy and other Federal departments of his findings relating to the unusual incidence of asbestosis among shipyard asbestos workers. The newspaper articles stated that the Federal agencies including the Navy have not publicized the hazards."

47. In a "Hazard Analysis" commissioned in response to this external criticism of the Navy's safety practices, Commander Rosenwinkel of the Navy's Bureau of Medicine assured that:

> [T]he Navy's shipyards have for many years been aware of the hazards of asbestos and have initiated appropriate safety precautions. Insofar as possible, all fabrication work [with insulation] is performed in the shops where adequate safety precautions can be observed. These precautions include controlled ventilation, use of respirators, and wetting down of the material. During "rip out" operations, respirators are worn and ventilation is controlled as far as possible.

Similar language was prepared "for inclusion in a statement to be issued by Rear Admiral J.J. Stilwell, Shipyard Management Directorate":

> The United States Navy is well aware of the hazards of asbestos to its employees engaged in ship construction and ship repair at naval shipyards. Hazard control measures implemented by the shipyard medical departments and practices in the United States. Stringent efforts are directed at keeping the concentration of air borne asbestos dust below the level recommended by the American Conference of Governmental Industrial Hygienists. An energetic periodic physical examination program insures the health of personnel exposed to this hazard.
>
> For more than two years, the Naval Ship Systems Command and the Commander of Boston Naval Shipyard have been cooperating with a prominent investigator in a study whose ultimate goal is to define safe working conditions with respect to air borne asbestos. Upon the development of further objective, well founded recommendations for the control of this hazard, the Naval Ship Systems Command, in cooperation with the Bureau of Medicine and Surgery, will take the necessary steps to implement them at the naval shipyards and all naval activities.

The message was clear, and consistent: the Navy would handle asbestos issues in its own way and through its own channels.

48. The development of the Navy's policy towards asbestos-related health issues, and of its program for addressing asbestos exposure to Navy

personnel, continued into the 1970s. On February 9, 1971, the Commander of the Navy's Ship Systems Command issued to numerous Navy bureaus and commands its Instruction 5100.26. That document began by recognizing that:

> [t]he most critical use of asbestos in the Navy from a safety viewpoint is in the fabrication, installation, repair or removal of pipe and boiler insulation materials. Some workers sustain accidental contacts either while employed in various capacities where asbestos products are processed or when working in plant areas in which an environmental pollution of the air exists due to asbestos.

In light of these concerns, the purpose of the document was "to prescribe appropriate safety precautions during the use of asbestos," and it decreed that:

> [t]he following safety precautions will be observed by all supervisors and workers engaged in the fabrication, installation and/or removal (ripout) of asbestos-containing insulation material. The provisions of this instruction will be effective as of this date. The provisions in this instruction are considered as minimum health and safety requirements. More stringent restrictions may be applied by local commanders.

The document then listed nearly fifty specific work practices to be employed to protect workers from asbestos exposure in handling or working in the vicinity of asbestos-containing products.

49. With specific reference to potential hazards associated with the handling of asbestos-containing gaskets and packing, I am aware from my research and from my personal experience in the Navy that these materials were regarded as negligible sources of asbestos exposure. For example, a December 9, 1968 U.S. Department of the Navy Memorandum regarding "Hazards of Asbestos" stated that

> [a]ll of the asbestos in [gasket and packing materials] is fabricated as cloth, rope or compressed sheet with binders, so that the items are not friable when they are cut. Thus, these items do not cause dust in shipboard applications. In addition, in many instances, they

> are received already incorporated in the finished assembly such as a valve, and do not require fabrication by the shipyard. For these reasons, packings and gaskets containing asbestos are not considered to be a significant health hazard.

50. This conclusion was reaffirmed in the published literature by P.G. Harries, who made extensive study of asbestos exposure in shipyards in the United Kingdom. In "Asbestos Dust Concentrations in Ship Repairing: A Practical Approach to Improving Asbestos Hygiene in Naval Dockyards," *Ann Occup Hyg 14:* 241-254 (1971), Harries concluded that asbestos-containing gaskets, which he referred to as "high temperature jointing and packing materials," presented "[n]o health hazard in forms used in shipyard applications." He also noted that "[n]o substitute heat-resistant material is available" for asbestos in these applications.

51. A 1973 publication of the International Agency for Research on Cancer – *Biological Effects of Asbestos*, p. 325 – stated that "[t]here is no conceivable health risk in the use of asbestos-based gasket materials." Well-known asbestos researcher and health advocate Dr. Irving Selikoff wrote, in his 1978 book *Asbestos and Disease* (p. 467) that "[h]igh temperature jointing and packing materials" containing "[a]sbestos fiber" and "[c]ompressed asbestos fiber" present "[n]o health hazard in forms used in shipyard applications."

52. The lack of concern for asbestos exposure from asbestos-containing gaskets and packing expressed in Navy documents and the writings of researchers such as Harries and Selikoff are entirely consistent with my experience as a uniformed and civilian Navy occupational medicine physician during the late 1970s and early and mid-1980s.

53. In addition to the documents referenced and discussed above, the development of the Navy's knowledge of asbestos-related health issues and of appropriate workplace practices and controls to prevent exposure to elevated levels of airborne asbestos also is reflected, among others, in the documents listed on Exhibit B, which comprise part of the bases for my opinions on these topics.

54. The Navy made its decisions with respect to the use of asbestos in accordance with Navy operating requirements and in furtherance of Navy missions, and in light of the Navy's knowledge of associated health hazards at the time and of its perception of the requirements of federal law. The Navy's extensive and evolving knowledge of the hazards of exposure to asbestos and the means to control those hazards were weighed by the Navy against the benefits provided by its use. These benefits included meeting national defense needs in a standardized, efficient and low-cost manner that would not delay or hinder ship availability, especially during times of war. The Navy was informed in this decision-making by close contacts and liaison with relevant academic communities, professional organizations and other government agencies.

55. Similarly, the Navy's handling of and programs regarding workplace safety and hazard communication, as they related to asbestos and other issues, reflected the Navy's balance of various considerations, including combat readiness, maintenance of the necessary command structure, the needs of discipline and the hierarchy of risks presented by life and work aboard a combat vessel. In general, the Navy chose to address long-term workplace health issues

in the course of training for various trades and jobs, rather than using labeling or other written materials to accompany products into the workplace.

56. The U.S. Navy's occupational health program in no way depended upon, required or sought advice from equipment manufacturers regarding long-term occupational health issues, including those posed by exposure to asbestos dust. I have not uncovered – nor would I have expected to based on my research and experience and the extent of the Navy's knowledge in these areas – situations in which the Navy solicited from suppliers of shipboard equipment any information or guidance regarding the appropriate methods for the prevention of exposure to asbestos. Given the Navy's state-of-the-art knowledge concerning asbestos related hazards and its robust safety and health program, it would be unreasonable to assume that the Navy would have accepted any advice pertaining to asbestos related safety precautions from a manufacturer of equipment.

57. My opinions set forth herein are held to a reasonable degree of scientific certainty.

I declare under penalty of perjury under the laws of the State of Massachusetts that the foregoing is true and correct, and that if called as a witness, I could competently testify to the foregoing facts, all of which are within my own personal knowledge.

Executed this 23RD day of November, 2010 at Brookline, MA

SAMUEL A. FORMAN, M.D.

STATE OF MASSACHUSETTS

COUNTY OF Norfolk

Subscribed and sworn to before me
this 23 day of November, 2010.

Notary Public

My commission expires:

RAYSA I ORTIZ
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
January 17, 2014

EXHIBIT A

SAMUEL A. FORMAN, M.D.
11 Clinton Road
Brookline, MA 02445

(617)-306-2403 cell samforman001@hotmail.com

EMPLOYMENT

2005 - present
Oak and Ivy Health Systems, Inc., Cambridge, MA
President
Consulting services encompassing, quality management, disease management, intensive case management, business strategy, epidemiology and toxicology issues.

2003 - 2004
Healthways, Inc., Westboro, MA
Senior VP and Medical Director
Medical direction for high-risk case management, comprising StatusOne services offered as a product line of American Healthways.

1997 - 2003
StatusOne Health Systems, Inc., Westboro, MA
Senior VP, Chief Medical Officer, Founder and Board Secretary
Consulting, software and Internet services helping risk-bearing health organizations care for their frailest members. Develop predictive models, consult on the organization and execution of medical management services, formulate client relationships, contribute professional papers and monographs, evaluate competitive offerings, and represent StatusOne to medical audiences.
Company acquired by Healthways, Inc., September 2003.

1995 - 1997
Blue Cross and Blue Shield of Massachusetts, Boston, MA
Medical Director, Clinical Improvement
General management responsibilities for pharmacy, home care, and several health care joint ventures. Lead clinical improvement projects involving all specialties in a 100,000 member integrated delivery system. Leadership of 150 people. Occupational medicine liaison with Raytheon Corporation. Provide general internal medicine care.

1986 - 1993
Procter & Gamble Company, Cincinnati, Ohio
Consultant, later Associate Director, Occupational Health
Manage U.S. self-insured health programs for 30,000 employees comprising the detergent, paper, pharmaceutical and food divisions. Build epidemiologic function, design, contract for, and execute studies. Model programs reapplied worldwide. Manage 5 physicians, 3 nurses plus support staff. Deliver clinical services to technical center staff and senior management. Direct 70 site clinics and 60 part-time physicians.

1984 - 1986
Coastal Emergency Services, Inc.
Clinical services as emergency room physician and ambulatory family medicine at several Virginia community hospitals

MILITARY SERVICE

1982 - 1986 **Navy Environmental Health Center**
Norfolk, Virginia
Lieutenant Commander, later GS-14 Consultant in the occupational medicine division
Set standards, review complicated disability claims, apply statistical methods to health care delivery, inspect clinics for QA and UR, lecture on professional topics, perform epidemiologic studies and health hazard evaluations, represent naval occupational medicine on selected issues to outside organizations, manage development and implementation of clinical information management system.

1980 - 1982 **Naval Regional Medical Center**
Long Beach, California
Occupational Medicine Service; Head, Seal Beach Naval Weapons Station clinic. General and occupational clinical and preventive programs for 2,200 workers and 250 military personnel at conventional, nuclear capable, and special weapons industrial base. Manage asbestos medical surveillance program at Long Beach Naval Shipyard.

1978 - 1979 **USS St. Louis** (LKA-116) and **USS Duluth** (LPD-6)
Based at San Diego, California
Ship's physician
Western Pacific operations, general office and emergency practice.
Vietnamese refugee assistance.

EDUCATION

1993 - 1995 **Yale** University School of Management,
New Haven, Connecticut
Master of Business Administration
Concentration in Organizational Behavior and Operations. Total quality management, health administration, finance, marketing, accounting and statistics.
Coordinator of Yale/Columbia Graduate School of Business Negotiation Colloquium.

1979 - 1980 **Harvard** University School of Public Health,
Boston, Massachusetts
Master of Science
Residency in Occupational Medicine

1977 - 1978 **National Naval Medical Center,**
Bethesda, Maryland
Internal medicine rotating internship
Assistant senior intern.

1976 - 1977 **Harvard** University School of Public Health,
Boston, Massachusetts
Master of Public Health

1973 - 1977 **Cornell** University Medical College,
New York, New York
Doctor of Medicine
MD-MPH program.

1970 - 1973 **University of Pennsylvania,**
Philadelphia, Pennsylvania
Bachelor of Arts magna cum laude
Majors in biology and history.

PUBLICATIONS

Coberley C, Hamar B, Gandy B, Orr P, Coberley S, McGinnis M, Hudson L, Forman S, Shurney D, Pope J: "Impact of Telephonic Interventions on Glycosylated Hemoglobin and Low-density Lipoprotein Cholesterol Testing" Am J Managed Care 13(4): 188-192, 2007.

Forman S: "Targeting the Highest Risk Population to Complement Disease Management" Health Management Technology 49-50, Jul 2004.

Forman SA, Lynch JP: "High Risk Geriatric Population Management" J Am Geriatric Assoc S111, May 2001.

Lynch J, Forman SA, Graff S, Gunby M: "High Risk Population Health Management: Achieving Improved Patient Outcomes and Near-Term Financial Results" Am J Managed Care 6(7):781-791, 2000.

Forman S: "Medicare Risk Plans and Disease Management Vendors" Disease Management and Health Outcomes 7(1):1-4, 2000.

(Book) Forman SA, Kelliher M: *Status One: Breakthroughs in High Risk Population Health Management,* Medical Management Series, Jossey Bass Publishers, San Francisco 1999.

Borron SW, Forman SA, Lockey JE, Lemasters GK, Yee LM: "Dust and Mirrors or Corruption is in the Eye of the Beholder," American Journal of Industrial Medicine 34:409-410, 1998.

Forman SA, Kelliher M, Wood G: "Clinical Improvement with Bottom Line Impact - Custom Care Planning for the Acutely, Chronically Ill in a Managed Care Setting," J Managed Care 3(7): 1039-1048, July 1997.

Borron SW, Forman, SA, Lockey JE, Lemasters GK, Yee LM: "An Unpublished 1932 Study of Asbestosis Among Manufacturing Workers: Reconstruction of the Cohort and Original Findings," American Journal of Industrial Medicine 31: 324-334, 1997.

Ducatman AM, Forman SA, Teichman R, Gleason RE: "Occupational Physician Staffing in Large U.S. Corporations," Journal of Occupational Medicine 33(5): 613-618, 1991.

Forman SA: "A Review of Propylene Glycol Dinitarate Toxicology and Epidemiology," Toxicology Letters 43: 51-65, 1988.

Ducatman AM, Yang WM, Forman SA: "B-Readers and Asbestos Medical Surveillance," Journal of Occupational Medicine 30(8): 644-647, 1988.

Forman SA: "Sublethal Exposure to Microwave Radiation (letter)," Journal of the American Medical Association 259(1): 3129, 1988.

Forman SA: "U.S. Navy Occupational Medicine Through World War Two," Journal of Occupational Medicine 31(1): 28-32, 1988.

Forman SA, Potter HG, Helmkamp JC: "Retrieval Methodology for Inpatient Records," Military Medicine 152: 190-193, 1987.

Forman SA, Helmkamp JC, Bone CM: "Cardiac Morbidity Associated With Occupational Exposure to 1,2 Propylene Glycol Dinitrate," Journal of Occupational Medicine 25(5): 445-450, 1987.

Forman SA: "Radiation-Induced Breast Cancer (letter)," Archives of Internal Medicine 145: 574-575, 1985.

Helmkamp JC, Forman SA, McNally MS, Bone CM: "Morbidity and Mortality Associated With Exposure to Otto Fuel II in the U.S. Navy 1966-1979," Naval Health Research Center Report 84-35, 1984.

Forman SA: "Industrial Hygiene Records - Will They Be Useful and IBM's Experience With ECHOES," American Conference of Governmental Industrial Hygienists Journal 6: 41,75, 1983.

Forman SA, Holmes CK, McManamon TV, Wedding C: "Psychological Symptoms and Intermittent Hypertension Following Acute Microwave Exposure," Journal of Occupational Medicine 24(11): 932-934, 1982.

Forman SA, Castell DO: "Food Intolerance and Peptic Ulcer Disease," Gastroenterology 75(1): 162, 1978.

ACADEMIC AFFILIATIONS

Harvard University, School of Public Health, Visiting Scientist in the Department of Environmental Health, 2007 – current.

Yale University School of Management, health sector symposia 2005 – current.

University of Cincinnati, chairman of the post-graduate Occupational Medicine Advisory Committee, 1988-1990.

Eastern Virginia Medical College, adjunct assistant professor of family practice and community medicine, 1983-1985.

LICENSES and CERTIFICATIONS

Licensed to practice medicine in Massachusetts, Virginia, California and Ohio.
Board certified in Occupational Medicine.

MEMBERSHIPS

Member, American College of Physician Executives, American Medical Association, and Massachusetts Medical Society
Fellow, American College of Occupational and Environmental Medicine.

INTERESTS

General management within health related and other businesses. Innovations, strategy and leadership in the cost effective delivery of medical care and the maintenance of high patient functional status. Enjoy travel, rowing, writing, numismatics, history, antiques. Company surgeon of the Lexington Minutemen historical reenactors.

EXHIBIT B

1922-03-00	Naval Medical Bulletin
1922-11-00	L.I. Dublin et al., Naval Medical Bulletin, "Instruction to Medical Officers"
1928-10-11	Navy Department Memorandum re Safety Engineering
1939-00-00	Navy Handbook of the Hospital Corps
1939-00-00	Navy, Annual Report of the Surgeon General
1939-06-18	Letter from International Association of Heat and Frost Insulators and Asbestos Workers
1939-07-07	Navy Memorandum
1939-07-13	Navy Memorandum re Hazards to Health of Insulating Materials
1940-09-16	Selective Service Act
1941-00-00	Ernest W. Brown, M.D., Captain, Medical Corps, United States Navy, "Industrial Hygiene and the Navy in National Defense"
1940-12-16	Navy Memorandum re Amosite; dangers from
1941-00-00	Navy Annual Report of the Surgeon General
1941-03-11	Navy Memorandum from C.S. Stephenson to Admiral McIntire
1941-12-19	U.S. Office of Production Management Informational Bulletin
1942-01-20	Conservation Order No. M-79 Curtailing the Use of Certain Types of Asbestos
1942-09-22	Report to Maritime Commission re Industrial Health Survey of Bath Iron Works
1942-11-10	Letter from p. Drinker to Bath Iron Works
1942-12-07	Minutes of Proceedings before the United States Maritime Commission, Meeting in Regard to Minimum Requirements for Industrial Health and Safety in Shipyards
1943-00-00	Navy Department Routing Slip
1943-05-18	New York Shipbuilding Corporation Memo re Insulating Material for Cold Water Piping
1943-05-31	Navy Department Memo re Insulation
1943-05-31	Navy Department Memo re Insulation and Lagging of Cold Water Systems
1943-07-02	Navy Department Memo re Insulation
1943-08-06	Navy Department Memo re Insulation
1943-09-18	Navy Department Memo re Asbestos Insulating Felt (Amosite)
1943-00-00	Maritime Commission, Shipyard Health and Safety Bulletin No. 28
1943-01-15	Navy Memorandum re Minimum Requirements
1943-01-20	Navy Department, Maritime Commission, "Minimum Requirements for Safety and Industrial Health in Contract Shipyards"
1942-01-21	Federal Register – Asbestos

1943-07-09	Letter to Navy Department from p. Drinker
1943-08-11	Memo from Bureau of Ships to Supervisor of Shipbuilding
1943-08-20	War Board Compliance Order
1943-12-10	Memorandum to Secretary of the Navy
1944-00-00	Outline of the Minimum Standards for the Control of Health and Safety in Contract Shipyards
1944-01-01	Safety Engineering, Chapter 24B, Bureau of Navy
1944-01-05	Navy Memorandum re Amosite Lagging
1944-01-08	Maritime Commission Letter to Navy
1944-01-19	Navy Memorandum re Amosite Lagging, toxic effects of
1944-11-02	Letter from p. Drinker to Industrial Union of Marine and Shipbuilding Workers of America
1944-12-19	Safety and Industrial Health Program Report on Investigation Asbestosis from Amosite Pipe Covering at Bath Iron Works
1945-01-31	Letter to Navy from p. Drinker
1946-01-00	W.E. Fleischer, et al., "A Health Survey of Pipe Covering Operations in Constructing Naval Vessels"
1946-08-00	Safety Review
1947-01-00	Safety Review
1947-07-00	Safety Review
1955-00-00	C. Shilling, Naval Institute, The Human Machine
1955-00-00	Navy Memorandum re List of Occupational Hazards
1955-07-05	Navy Instruction 88, Industrial Health Program
1955-10-19	Minutes of Meeting
1955-11-07	Navy Instruction re Threshold Limit Values
1956-00-00	Navy – All Hands
1956-06-00	Navy Bureau of Medicine List of Occupational Health Hazards
1957-00-00	Navy – All Hands
1957-04-00	Long Beach Naval Shipyard Poster
1957-05-08	Boston Naval Shipyard, Minutes of Pipe and Copper Shop Master Mechanics Conference
1957-06-04	Navy Report on Naval Shipyard Pipe Shop Masters Conference
1958-01-07	NAVORD Instruction 5100.21
1958-09-03	Memorandum re Dirty Money for Pipe Laggers
1959-10-15	Navy Department Memorandum re Occupational Health Hazards: Release No. 21
1960-00-00	Safety and Health Regulations for Ship Building
1958-01-07	NAVORD Instruction 5100.21
1959-07-15	Navy Department Memorandum re Occupational Health Hazards: Release No. 20
1960-00-00	Navy Memorandum re Occupational Health Hazards
1961-02-01	Navy Department Memorandum re Occupational Health Hazards: Release No. 26

1961-05-00	Puget Sound Naval Shipyard, Shop 56, "Marine Pipe Covering and Insulating"
1961-05-01	Navy Department Memorandum re Occupational Health Hazards: Release No. 27
1961-10-19	Navy Department Memorandum re Occupational Health Hazards: Release No. 29
1961-11-10	26 Federal Register 10583
1962-10-00	Safety Review "Asbestos"
1963-09-00	Navy Department Memorandum re Occupational Health Hazards: Release No. 38
1964-05-00	W.T. Marr, "Asbestos Exposure During Naval Vessel Overhaul"
1965-05-15	Navy, Safety Precautions for Shore Activities
1965-06-22	Navy Department Memorandum re Occupational Health Hazards: Release No. 43
1966-02-08	Navy Department Memorandum re Occupational Health Hazards: Release No. 44
1967-07-24	Navy Department Memorandum re Occupational Health Hazards: Release No. 50
1967-10-23	Letter from Pipe Coverers Department re Respirators
1968-00-00	Department of the Navy Memorandum re December 4 Washington Post Article
1968-02-09	Navy Department Memorandum re Occupational Health Hazards: Release No. 54
1968-06-18	Navy Department Memorandum re Occupational Health Hazards: Release No. 56
1968-07-30	USPHS Letter to Navy Department
1968-08-00	C. Mangold, "Asbestos Exposure and Pulmonary X-Ray Changes to Pipe Coverers and Insulators at Puget Sound Naval Shipyard"
1968-12-04	Department of Navy Memorandum re December 4 Washington Post Article on Asbestos Peril
1968-12-04	Department of the Navy Memorandum re Asbestos
1968-12-06	Navy Memorandum re Asbestos Hazard to Shipyard Employees
1968-12-09	Navy Memorandum re Asbestos Hazard to Shipyard Employees
1968-12-19	Navy Memorandum re Newspaper articles appearing on shipyard asbestos workers
1969-01-16	Navy Department Memorandum re Occupational Health Hazards: Release No. 62
1969-01-22	Navy Memorandum re Asbestos Hazard
1969-03-14	NAVSHIPS Notice 5100
1969-04-07	Navy Memorandum re Hazards of Asbestos
1969-04-23	Navy Memorandum re Shipyard Practices in Combating the Hazards Attending Use of Insulating Materials

1969-04-24	Navy Memorandum re Asbestos, Hazards of
1969-04-30	Navy Memorandum re Shipyard Practices in Combating the Hazards Attending Use of Insulating Materials
1969-05-00	E. Cherowbrier, "Preventing Asbestos Inhalation"
1969-05-05	Navy Department Letter to Owens-Corning
1969-05-06	Navy Department Memorandum re Shipyard Practices in Combatting Hazards Attending Use of Insulating Materials
1969-05-16	Navy Department Memorandum re Shipyard Practices in Combatting Hazards Attending Use of Insulating Materials
1969-05-21	U.S. Navy Department Memorandum re Shipyard Practices in Combatting Hazards Attending Use of Insulating Materials
1969-07-30	Navy Memorandum re Asbestos Hazards of
1969-08-15	Navy Memorandum re Asbestos Dust Exposure, measures to control
1969-08-20	Department of Navy Memorandum re Asbestos, hazards of
1969-09-24	Navy Memorandum re Survey of Asbestos, final report of
1969-10-16	Navy Department Memorandum re Occupational Health Hazards: Release No. 61
1970-00-00	Insulation Hygiene Progress Reports, "The U.S. Navy Joins Battle with Shipyard Dust"
1970-03-00	Navy Memorandum re Elimination of High Asbestos Content Insulation
1970-03-02	Navy Memorandum re Recommendations for Asbestos Dust Control
1970-05-22	NAVSEC Notice 9390
1970-11-00	Puget Sound Naval Shipyard, "Asbestos Exposure and Control"
1971-00-00	P.G. Harries, "Asbestos Dust Concentrations in Ship Repairing: A Practical Approach to Improving Asbestos Hygiene in Naval Dockyards"
1971-02-09	NAVSHIPS Instruction 5100.26: Asbestos Exposure Hazards; control of
1971-02-17	Newport News Shipbuilding and Dry Dock Company Memo
1971-02-24	Navy Letter re Asbestos Exposure Hazards; Control of
1971-12-07	Navy Memorandum re Asbestos Control
1972-00-00	Navy Occupational Health Manual
1972-03-30	Navy Department Report of Occupational Health Services Narrative Release No. 68
1972-10-13	Navy Memo re Draft Reply to Sen. Fong
1972-12-00	Navy Department Memorandum re Occupational Health Hazards: Release No. 70
1973-00-00	IARC, *Biological Effects of Asbestos*
1973-06-07	BUMED Instruction 6260.14
1973-07-17	NAVSHIPS Presentation – Asbestos Workplace Controls and Substitutes
1974-00-00	Fathom – Surface Ship and Submarine Safety Review

1974-01-02	Navy Memo re QPLs and Color-Coding Asbestos Free Insulation Products
1974-01-23	Navy Department Report of Occupational Health Services Narrative
1974-02-21	Navy Department Memo re Proposed OPNAVINST 6260.__
1974-04-09	OPNAVINST 6260.1
1974-08-12	Navy Memorandum re Asbestos Dust Counts During Shipboard Asbestos Operations
1974-04-09	OPNAV Instruction 6260.1
1975-10-24	NAVSEA Instruction 5100.2
1976-03-12	Winer & Holtgren, A Case Study of the Navy's Response to Upgraded Safety and Health Requirements – Asbestos
1978-00-00	I. Selikoff *et al.*, *Asbestos and Disease*
1978-00-00	Navy Training Course – Machinist's Mate 3 & 2
1978-05-00	L.R. Liukonen *et al.*, "Asbestos Exposure from Gasket Operations"
1979-01-05	Navy Department Letter to R.F. Hughes
1979-08-20	Memo from Department of the Navy re Asbestos Elimination Program
1979-09-26	Navy Department Letter re USS Enterprise Sampling
1979-10-18	Letter from Comptroller General to Hon. G.A. Anderson re Navy's Efforts to Protect Workers from Asbestos Exposure
1983-09-21	Navy Department Memorandum re Shipboard Workers, asbestos exposure of
1985-07-30	Request and Authorization for TDY Travel of DOD Personnel
1985-08-00	Memo re Use of Naval Medical Command Archival Materials
1985-08-13	Request and Authorization for TDY Travel of DOD Personnel
1985-09-16	Request and Authorization for TDY Travel of DOD Personnel
1985-12-20	Department of Navy Letter
1986-01-10	Department of Navy Letter
1988-01-00	S. Forman, "US Navy Shipyard Occupational Medicine through World War II"
0000-00-00	Navy Report of Travel
0000-00-00	Navy Dust Mask Poster
0000-00-00	Navy Get First Aid Poster
0000-00-00	Navy Another Naval Victory Poster
0000-00-00	Navy Needs Ships Poster
0000-00-00	Navy Needs You Poster
0000-00-00	Navy On the Job Poster
0000-00-00	Ships for Victory Poster
0000-00-00	CV of Samuel A. Forman
0000-00-00	Navy Photos